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EXAMINER	
LEE, SIU M	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/791,924	BRUNN ET AL.	
	Examiner	Art Unit	
	SIU M. LEE	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _13 August 2008_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-3,5-11 and 13-20_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-3,5-11 and 13-20_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _14 June 2007_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-3, 5-11, 13-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 11, 13-20 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps or acts to be performed, a statutory “process” under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing (Reference the May 15, 2008 memorandum issued by Deputy Commissioner for Patent Examining Policy, John J. Love, titled “Clarification of ‘Processes’ under 35 U.S.C. 101”). The instant claims neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1, 2, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lenosky (US 6,956,917 B2) in view of Minuhin et al. (US 5,430,768) and Bottomley et al. (US 5,889,827).

(1) Regarding claim 1:

Lenosky discloses an apparatus comprising:

a filter tap coefficient module that provides a plurality of filter tap coefficients (computation of the coefficients is accomplished by the microcontroller 206 in figure 2, column 12, lines 33-34);

a filter (filter as discloses in figure 4) that includes a plurality of filter taps such that each filter tap is adjusted according to one filter tap coefficient of the plurality of filter tap coefficients (the filter in figure 4 comprises a plurality of coefficient multipliers multiplying the filter tap coefficients with s[n] fro estimating the current data symbol based on the combined output from the precursor and postcursor filter, column 12, lines 5-18);

wherein the filter is enabled to modify a pulse in a communication channel, wherein the modified pulse is located within a sequence of bit periods (as shown in figure 3, the received bit is located within a sequence of bit period, column 6, lines 14-18);

wherein the filter tap coefficient module employs an inverse of a communication channel transfer function to calculate the plurality of filter tap coefficient (microcontroller 206 deduces enough information from these functions to predict the channel response h(t) and uses the channel response to generate an initial set of filter coefficient for the equalizer 210 to compensate for the effect of the channel response, column 4, lines 63-67).

Lenosky fails to disclose (a) wherein the modified pulse has zero crossings located substantially at bit edges of each bit period within the sequence of bit periods except those bit edges immediately adjacent to a bit period in which the pulse is substantially located; and (b) employ a pulse mapping to generate the channel transfer function.

With respect to (a), Minuhin et al. discloses a filter (filter 64 in figure 1) wherein the modified pulse has zero crossings located substantially at bit edges of each bit period within the sequence of bit periods except those bit edges immediately adjacent to a bit period in which the pulse is substantially located (series of data is input to the filter and filter by the filter 64, the out put of the filter is the waveform shown in figure 2, the zero crossings at each T period ((n+2)T, (n+3)T, (n+4)T, (n-1)T, (n-2)T, (n-3)T a shown in figure 2 except nT and (n+1)T) in the center, T is equal to the reciprocal of data rate, column 8, lines 25-28; therefore, when data rate is 1, T will be the bit length).

It is desirable wherein the modified pulse has zero crossings located substantially at bit edges of each bit period within the sequence of bit periods except those bit edges immediately adjacent to a bit period in which the pulse is substantially located because

it enforce the spectral properties and allows a controlled amount of intersymbol interference. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Minuhin et al. in the apparatus of Lenosky to improve the performance of the apparatus.

With respect to (b) Bottomley et al. discloses using a medium response estimator 402 and pulse shaping information provided by pulse shaping information unit 404 to generate the channel response (figure 4, column 4, lines 55-59).

It is desirable to employ a pulse mapping to generate the channel transfer function because it can reduce the problem of noise correlation (column 3, lines 5-6). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Bottomley et al. in the device of Lenosky and Minuhin et al. to improve the performance of the device.

(2) Regarding claim 2:

Lenosky discloses the filter tap coefficient module (microcontroller 206 in figure 2) calculates the plurality of filter tap coefficients in real time based on current updated characteristic information of the communication channel that communicatively couples a transmitter and a receiver (the microcontroller apply the calculated channel response to obtain filter coefficients for the equalizer, in other words, the equalizer uses the channel response and to equalize the received signal s(t), column 11, lines 45-51, computation of the coefficients is accomplished by the microcontroller 206 with a routine that receives the current estimate of the channel responses as an input, and return the optimal coefficient as an output, column 12, lies 33-38, one feature of the present

invention is the ability to update the estimate of the tap weights based on changes in the estimate of the channel response, column 15, lines 3-5).

(3) Regarding claim 7:

Lenosky discloses that the plurality of filter taps includes 3 filter taps; and the plurality of filter tap coefficients includes 3 corresponding filter tap coefficients (the actual number of coefficients in the precursor and the postcursor section of the filter are determined by a designer before construction of the filter, column 12, lines 28-30, the number of tap and tap coefficients are actually a design choice of how many is to be used).

(4) Regarding claim 9:

Lenosky discloses that the filter is implemented within a receiver that is communicatively coupled to a transmitter via the communication channel (as discloses in figure 2, an adaptive channel-compensating equalizer received a signal s(t) transmitted from the transmitter as discloses in figure 1(a) and (b)).

2. Claims 11, 13, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lenosky (US 6,956,917 B2) in view of Minuhin et al. (US 5,430,768) and NPL (Digital Communication by Edward A. Lee and David G. Messerschmitt, page 189).

(1) Regarding claim 11:

Lenosky discloses an apparatus comprising:

a filter tap coefficient module that provides a plurality of filter tap coefficients (computation of the coefficients is accomplished by the microcontroller 206 in figure 2, column 12, lines 33-34);

a filter (filter as discloses in figure 4) that includes a plurality of filter taps such that each filter tap is adjusted according to one filter tap coefficient of the plurality of filter tap coefficients (the filter in figure 4 comprises a plurality of coefficient multipliers multiplying the filter tap coefficients with s[n] fro estimating the current data symbol based on the combined output from the precursor and postcursor filter, column 12, lines 5-18);

wherein the filter is enabled to modify a pulse in a communication channel, wherein the modified pulse is located within a sequence of bit periods (as shown in figure 3, the received bit is located within a sequence of bit period, column 6, lines 14-18);

wherein the filter tap coefficient module employs an inverse of a communication channel transfer function to calculate the plurality of filter tap coefficient (microcontroller 206 deduces enough information from these functions to predict the channel response h(t) and uses the channel response to generate an initial set of filter coefficient for the equalizer 210 to compensate for the effect of the channel response, column 4, lines 63-67).

Lenosky fails to disclose (a) wherein the modified pulse has zero crossings located substantially at bit edges of each bit period within the sequence of bit periods except those bit edges immediately adjacent to a bit period in which the pulse is

substantially located; and (b) wherein the modified pulse substantially minimizes ISI (Inter-Symbol interference) at bit edges of each bit period within the sequence of bit periods except those bit edges immediately adjacent to the bit period in which the pulse is substantially located.

With respect to (a), Minuhin et al. discloses wherein the modified pulse has zero crossings located substantially at bit edges of each bit period within the sequence of bit periods except those bit edges immediately adjacent to a bit period in which the pulse is substantially located (series of data is input to the filter and filter by the filter 64, the out put of the filter is the waveform shown in figure 2, the zero crossings at each T period ((n+2)T, (n+3)T, (n+4)T, (n-1)T, (n-2)T, (n-3)T a shown in figure 2 except nT and (n+1)T) in the center, T is equal to the reciprocal of data rate, column 8, lines 25-28; therefore, when data rate is 1, T will be the bit length).

It is desirable wherein the modified pulse has zero crossings located substantially at bit edges of each bit period within the sequence of bit periods except those bit edges immediately adjacent to a bit period in which the pulse is substantially located because it enforce the spectral properties and allows a controlled amount of intersymbol interference. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Minuhin et al. in the apparatus of Lenosky to improve the performance of the apparatus.

With respect to (b), NPL discloses that by forcing the pulse to correct zero crossings in p(t), it also forces the inter-symbol interference to zero at the zero crossing point (NPL page 189).

It is desirable to eliminate the inter-symbol interference at the zero crossing point because it reduces the distortion to the signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of NPL in the method of Lenosky and Minuhin et al. to improve the performance of the method.

(2) Regarding claim 13:

Lenosky discloses the filter tap coefficient module (microcontroller 206 in figure 2) calculates the plurality of filter tap coefficients in real time based on current updated characteristic information of the communication channel that communicatively couples a transmitter and a receiver (the microcontroller apply the calculated channel response to obtain filter coefficients for the equalizer, in other words, the equalizer uses the channel response and to equalize the received signal s(t), column 11, lines 45-51, computation of the coefficients is accomplished by the microcontroller 206 with a routine that receives the current estimate of the channel responses as an input, and return the optimal coefficient as an output, column 12, lies 33-38, one feature of the present invention is the ability to update the estimate of the tap weights based on changes in the estimate of the channel response, column 15, lines 3-5).

(3) Regarding claim 18:

Lenosky and Minuhin et al. disclose all the subject matter as discussed in claim 16 except the modified pulse substantially minimizes ISI (inter-symbol interference) at bit edges of each bit period within the sequence of bit periods.

However, NPL discloses that by forcing the pulse to correct zero crossings in p(t), it also forces the inter-symbol interference to zero at the zero crossing point (NPL page 189).

It is desirable to eliminate the inter-symbol interference at the zero crossing point because it reduces the distortion to the signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of NPL in the method of Lenosky and Minuhin et al. to improve the performance of the method.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lenosky (US 6,956,917 B2) in view of Minuhin et al. (US 5,430,768) and Bottomley et al. (US 5,889,827) as applied to claim 1 above, and further in view of Gruber (US 5,249,150).

Lenosky, Minuhin et al., and Bottomley et al. disclose all the subject matter as discussed in claim 1, Lenosky further disclose the filter tap coefficient module calculates the plurality of filter tap coefficients based on predetermined characteristic information of the communication channel that communicatively couples a transmitter and a receiver (these initial values fro the coefficients are predetermined by the computational logic , and could, as one example, simply be set to zero, column 10, lines 54-57).

Lenosky, Minuhin et al., and Bottomley et al. fails to disclose calculates the plurality of filter tap coefficients offline.

However, Gruber discloses calculates the plurality of filter tap coefficients offline (The coefficients of the optimal filter may be calculated offline, e.g. in advance, and be stored in a memory, e.g. a ROM, PROM or RAM, column 7, lines 55-58).

It is desirable to calculate the plurality of filter tap coefficients offline because this allows certain portions of the terminal to be powered up for a shorter period of time, with unnecessary circuitry such as the front-end circuitry being powered down to reduce power consumption. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Gruber in the apparatus of Lenosky, Minuhin et al. and Bottomley et al. to reduce the power consumption of the system.

4. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lenosky (US 6,956,917 B2) in view of Minuhin et al. (US 5,430,768) and NPL (Digital Communication by Edward A. Lee and David G. Messerschmitt, page 189) as applied to claim 11 above, and further in view of Gruber (US 5,249,150).

Lenosky, Minuhin et al. and NPL disclose all the subject matter as discussed in claim 1, Lenosky further disclose the filter tap coefficient module calculates the plurality of filter tap coefficients based on predetermined characteristic information of the communication channel that communicatively couples a transmitter and a receiver (these initial values fro the coefficients are predetermined by the computational logic , and could, as one example, simply be set to zero, column 10, lines 54-57).

Lenosky, Minuhin et al. and NPL fails to disclose calculates the plurality of filter tap coefficients offline.

However, Gruber discloses calculates the plurality of filter tap coefficients offline (The coefficients of the optimal filter may be calculated offline, e.g. in advance, and be stored in a memory, e.g. a ROM, PROM or RAM, column 7, lines 55-58).

It is desirable to calculate the plurality of filter tap coefficients offline because this allows certain portions of the terminal to be powered up for a shorter period of time, with unnecessary circuitry such as the front-end circuitry being powered down to reduce power consumption. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Gruber in the apparatus of Lenosky, Minuhin et al. and NPL to reduce the power consumption of the system.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lenosky (US 6,956,917 B2) in view of Minuhin et al. (US 5,430,768) and Bottomley et al. (US 5,889,827) as applied to claim 1 above, and further in view of Veeneman et al. (US 4,852,169).

Lenosky and Minuhin et al., and Bottomley et al. disclose all the subject matter as discussed in claim 1 except wherein a sum of absolute values of each filter tap coefficient of the plurality of filter tap coefficient is substantially equal to one.

However, Veeneman et al. disclose a method to normalize the filter coefficient so that the sum of all the coefficients is equal to one (column 7, lines 47-48).

It is desirable to have a sum of absolute values of each filter tap coefficient of the plurality of filter tap coefficient is substantially equal to one because it can reduce the number of filter elements, particularly in the number of multipliers. Therefore, it would

have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Veeneman et al. in the apparatus of Lenosky, Minuhin et al. and Bottomley et al. to simplify the system.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lenosky (US 6,956,917 B2) in view of Minuhin et al. (US 5,430,768) and Bottomley et al. (US 5,889,827) as applied to claim 1 above, and further in view of Agazzi et al. (US 2007/0183540 A1).

Lenosky and Minuhin et al., and Bottomley et al. disclose all the subject matter as discussed in claim 1 except the filter is implemented within a transmitter that is communicatively coupled to a receiver via the communication channel.

However, Agazzi et al. discloses a transceiver (figure 2) that has a partial response pulse shaping filter (206 in figure 2) that shape the transmitted signal and output the signal to corresponding cable for communication to a remote receiver (paragraph 0101, lines 6-20).

It is desirable for the filter to be implemented within a transmitter that is communicatively coupled to a receiver via the communication channel because it reduces power consumption. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Agazzi et al. in the apparatus of Lenosky, Minuhin et al. and Bottomley et al. to improve the power efficiency of the apparatus.

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lenosky (US 6,956,917 B2) in view of Minuhin et al. (US 5,430,768) and NPL (Digital Communication by Edward A. Lee and David G. Messerschmitt, page 189) as applied to claim 11 above, and further in view of Veeneman et al. (US 4,852,169).

Lenosky, Minuhin et al. and NPL disclose all the subject matter as discussed in claim 1 except wherein a sum of absolute values of each filter tap coefficient of the plurality of filter tap coefficient is substantially equal to one.

However, Veeneman et al. disclose a method to normalize the filter coefficient so that the sum of all the coefficients is equal to one (column 7, lines 47-48).

It is desirable to have a sum of absolute values of each filter tap coefficient of the plurality of filter tap coefficient is substantially equal to one because it can reduce the number of filter elements, particularly in the number of multipliers. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Veeneman et al. in the apparatus of Lenosky, Minuhin et al. and NPL to simplify the system.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lenosky (US 6,956,917 B2) in view of Minuhin et al. (US 5,430,768) and Bottomley et al. (US 5,889,827) as applied to claim 1 above, and further in view of Kohlenberg et al. (US 3,876,941).

Lenosky, Minuhin et al. and Bottomley et al. disclose all the subject matter as discuss in claim 1, Lenosky further discloses that the transmitter and the receiver are

communicatively coupled via the communication channel (fig. 1 discloses a model of the transmitter and a receiver communicatively coupled via the communication channel, column 3, lines 43-56).

Lenosky, Minuhin et al. and Bottomley et al. fail to disclose wherein the filter is implemented in a distributed manner part in a transmitter and part in a receiver.

However, Kohlenberg et al. discloses a filter network that is distributed between transmitter and receiver (abstract, lines 8-12).

It is desirable to disclose wherein the filter is implemented in a distributed manner part in a transmitter and part in a receiver because it can simplify and improve the effectiveness of the match filter communication (column 2, lines 53-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Kohlenberg et al. in the apparatus of Lenosky, Minuhin et al. and Bottomley et al. to improve the performance of the apparatus.

9. Claims 16-17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lenosky (US 6,956,917 B2) in view of Minuhin et al. (US 5,430,768).

Lenosky discloses an apparatus comprising:

receiving a plurality of tap coefficients (the microcontroller 206 in figure 2 provides a plurality of filter coefficients to the equalizer 210, column 12, lines 33-38);

shaping a pulse that is substantially located within a bit period that is located within a sequence of bit periods using the plurality of filter tap coefficients (the filter in figure 4 comprises a plurality of coefficient multipliers multiplying the filter tap

coefficients with s[n] fro estimating the current data symbol based on the combined output from the precursor and postcursor filter, column 12, lines 5-18, as shown in figure 3, the received bit is located within a sequence of bit period, column 6, lines 14-18).

Lenosky fails to disclose wherein the shaping of the pulse results in a modified pulse that has zero crossings located substantially at bit edges within the sequence of bit periods.

However, Minuhin et al. discloses wherein the modified pulse has zero crossings located substantially at bit edges within the sequence of bit periods (series of data is filtered by the filter 64, the out put of the filter is the waveform shown in figure 2, the zero crossings at each T period ((n+2)T, (n+3)T, (n+4)T, (n-1)T, (n-2)T, (n-3)T a shown in figure 2 except nT and (n+1)T) in the center, T is equal to the reciprocal of data rate, column 8, lines 25-28; therefore, when data rate is 1, T will be the bit length).

It is desirable wherein the modified pulse has zero crossings located substantially at bit edges within the sequence of bit periods because it enforce the spectral properties and allows a controlled amount of intersymbol interference. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Minuhin et al. in the method of Lenosky to improve the performance of the apparatus.

(2) Regarding claim 17:

Minuhin et al. further discloses that the bit edges are not those bit edges immediately adjacent to the bit periods in which the pulse is substantially located (series of data is filtered by the filter 64, the out put of the filter is the waveform shown in figure

2, the zero crossings at each T period ((n+2)T, (n+3)T, (n+4)T, (n-1)T, (n-2)T, (n-3)T a shown in figure 2 except nT and (n+1)T) in the center, T is equal to the reciprocal of data rate, column 8, lines 25-28; therefore, when data rate is 1, T will be the bit length).

(3) Regarding claim 19:

Lenosky discloses calculating the plurality of BE-ZFE filter tap coefficient in real time based on currently updates characteristic information of a communication channel that communicatively couples a transmitter and a receiver (the microcontroller apply the calculated channel response to obtain filter coefficients for the equalizer, in other words, the equalizer uses the channel response and to equalize the received signal s(t), column 11, lines 45-51, computation of the coefficients is accomplished by the microcontroller 206 with a routine that receives the current estimate of the channel responses as an input, and return the optimal coefficient as an output, column 12, lies 33-38, one feature of the present invention is the ability to update the estimate of the tap weights based on changes in the estimate of the channel response, column 15, lines 3-5).

10. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lenosky (US 6,956,917 B2) in view of Minuhin et al. (US 5,430,768) as applied to claim 16 above, and further in view of Gruber (US 5,249,150).

Lenosky and Minuhin et al. disclose all the subject matter as discussed in claim 16, Lenosky further disclose the filter tap coefficient module calculates the plurality of filter tap coefficients based on predetermined characteristic information of the

communication channel that communicatively couples a transmitter and a receiver (these initial values for the coefficients are predetermined by the computational logic , and could, as one example, simply be set to zero, column 10, lines 54-57).

Lenosky and Minuhin et al. fails to disclose calculates the plurality of filter tap coefficients offline.

However, Gruber discloses calculates the plurality of filter tap coefficients offline (the coefficients of the optimal filter may be calculated offline, e.g. in advance, and be stored in a memory, e.g. a ROM, PROM or RAM, column 7, lines 55-58).

It is desirable to calculate the plurality of filter tap coefficients offline because this allows certain portions of the terminal to be powered up for a shorter period of time, with unnecessary circuitry such as the front-end circuitry being powered down to reduce power consumption. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Gruber in the apparatus of Lenosky and Minuhin et al. to reduce the power consumption of the system.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kahlman et al. (US 5,586,144) discloses a receiving arrangement including a variable equalizer, which variable equalizer is controlled on the basis of one or more signal portions produced by the variable equalizer. Cullum (US 4,694,468) discloses an apparatus useful in channel equalization adjustment. Markman et al.(US 7,038,730 B2) discloses a matched pulse shaping filter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SIU M. LEE whose telephone number is (571)270-1083. The examiner can normally be reached on Mon-Fri, 7:30-4:00 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Siu M Lee/
Examiner, Art Unit 2611
11/4/2008

/CHIEH M FAN/

Supervisory Patent Examiner, Art Unit 2611